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## Household Assets and Rural Finance in Nigeria

Onafowokan O. Oluombo

Department of Financial Studies, Redeemer's University, Ogun State, Nigeria

The study assesses the roles played by the loan service of cooperatives on household assets acquisition among cooperative members in Ogun State rural communities where there is no bank. Independent student test and one way analysis of variance were used to analyze the data collected through questionnaire from 302 members. The study shows that the following assets – land, generator, television, radio and refrigerator – were more likely to be acquired by members than non-members. This is an indication of improvement in members' standard of living made possible through access to cooperative loans. The study provided more evidence on the importance of land ownership, and how this is enhanced when rural communities have access to affordable loans. The study did not find evidence that cooperative members took advantage of the program, which is self sustained by their own savings, to acquire buildings and motor vehicles.

*Keywords:* Assets, rural finance, cooperative, standard of living, informal finance

*JEL Classification:* B26, D14, D61, G23

### Introduction

The household impact domain to explain the effect of cooperatives on the economic condition of members is used because "household frameworks provide a basis for studying impacts on micro-enterprises and individual household members" (Sebstad, 1998, p. 10). The most common household elements to assess economic condition for studies that are designed to use the standard of living criteria in rural areas are household income and household

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\* Corresponding author: Onafowokan O. Oluombo, Ph.D., Department of Financial Studies, Redeemer's University, Km. 46, Lagos – Ibadan Expressway, Ogun State, Nigeria. Tel: +23 48034925479, E-mail: oluyomboo@run.edu.ng

assets (Oluyombo, 2012). This study links cooperative societies, assets-building and rural finance to determine the role of cooperative societies in providing rural finance services that may lead to ownership of household assets by the participants

Asset-building by the poor is important for poverty reduction and improvement in standard of living and economic status of rural dwellers who are not served by formal banking services. Moreover, the shift from income to assets accumulation is important to measuring household wealth (Grinstein-Weiss & Curley, 2003). Ability to acquire more assets implies an improvement in economic level and an indication that participants have overcome lack of food, clothing and shelter which are synonymous with poverty (Oluyombo, 2013). The objective of this study is to assess the relationship that exists between cooperative members and the acquisition of household assets in rural areas where there is no formal financial service.

Next section presents the background issues of rural finance, access to credit, and characteristics of cooperative loans, followed by the theory of assets building. The empirical studies are reviewed to find a research gap for hypothesis testing. The results are presented and discussed, followed by conclusion.

## Background

In developing countries, about 70% of adults have no access to financial service (Richter, 2011) and this could be higher in rural areas, while about 90% of the rural sector financial needs are satisfied by informal rural finance providers (World Bank, 1994). The rural finance providers in Nigeria are microfinance outlets that operate outside the authority of the financial system regulatory bodies. The informal finance providers are more than formal finance providers in rural areas and semi-urban centres as a result of the exclusion of poor people from financial services by government-regulated financial institutions because of high transaction costs, high risk, lack of infrastructure and lack of adequate/acceptable collateral (Oluyombo, 2007).

The World Bank (2000) reported that in virtually every part of Nigeria, people have used their personal savings and small loans from family and friends and other informal associations to carry out their businesses. The same report affirms that rural dwellers patronise

and prefer the informal sector because of the high degree of certainty and flexibility in sourcing for and repaying loans from informal lenders. It is easier and faster to borrow from these informal lenders in Nigeria than the microfinance banks and commercial banks (Oke, Adeyemo, & Agbonlahor, 2007). This is because a borrower can access the lender and complete the financial deal in a few days. However, with an average maturity of three months, the informal sector cannot be involved in the provision of medium to long-term credit necessary for investment in long gestation crops, livestock and agro-processing (World Bank, 2000). Economic and social networks that may be instrumental towards assets-building for the poor are important because, as Grinstein-Weiss, Curley and Charles (2007) note, the poor people do not participate in asset-based policies and programs of the government, which do not benefit the poor.

A cooperative is an independent association of people who voluntarily unite to form a jointly owned and democratically controlled enterprise, called a cooperative, to meet members' economic, social and cultural needs (Henry & Schimmel, 2011). A cooperative can be seen as an arrangement designed to improve the lot of individuals and micro- and small-scale entrepreneurs by mobilizing savings and accessing fund as loan when needed. Cooperative societies are privately organised association of like-minded individuals with shared values who come together to operate a savings and loan program among themselves to meet their needs (Oluyombo, 2013).

Membership in the cooperatives that were the subject of this study is opened to any member of the community, provided such person is certified by existing members as honest, hardworking and reliable. Members are expected to participate in the compulsory saving for at least six months before they can borrow from the scheme. The savings are not accessible to the members under any condition except on withdrawal of membership or death. This forms the corporate assets of the program from which loans are granted to deserving members. The savings of a member serve as collateral in case of loan default. Members are also expected to obtain guarantors within the cooperative. The guarantors are called upon to redeem their obligations in case of default. All loans are expected to be repaid within six to twelve months depending on the capacity of the borrower. However, those who wish to repay the loan within a shorter duration can do so with a reduced interest payable.

## Theories

“Asset holdings generate positive outcomes that are beyond consumption” (Grinstein-Weiss & Curley, 2003, p. 2). This statement pervades the various theories that have been used to explain the factors that can influence asset building. These include psychological and sociological theory, social capital theory and the neoclassical theory. The neoclassical theory argues that the way individuals respond to changes in incentives can be predicted. It suggests that individuals behave rationally when deciding on asset accumulation. Some economic models of the neoclassical theory postulate perfect knowledge and access to perfect market by individuals (Beverly et al., 2008). But this is not possible in most of the rural areas of developing countries and especially in sub-Saharan Africa. The early models of the theory identify income and age as the predominant factors for asset building, but Sen (1999) reveals that assets can be accumulated through sources other than income. Recent models, as seen in Adjei, Arun and Hossain (2009), Grinstein-Weiss et al. (2007) and Oluyombo (2013), have shifted to the use of savings and loans jointly or separately in asset accumulation for rural dwellers that lack access to formal financial institutions. The theory assumes that individuals have unrestricted access to savings and credit markets are highly contestable in rural areas.

Psychological and sociological theory advanced individual personal characteristics and future expectation as determinant factors for assets ownership. The issue of ‘thrift’ and family/peer influences are considered to shape individual action towards asset accumulation (Beverly et al., 2008; Lombe & Sherraden, 2007). The social network may therefore play a critical role in economic decisions of individuals because such network may provide a unique platform for asset ownership for its members by providing financial resources. This explains the use of demographic variables in this study as other factors for asset accumulation in addition to loan.

The social capital theory postulates that when people act or function in a group as in a cooperative society or self-help group, it leads to the economic and social development of the group, individuals in the group and the immediate community where such group operates from (Anderson, Locker, & Nugent, 2002; World Bank, 1998). Social development is the improvement in relationship between people while the economic development is divisible

into two parts as improvement in financial condition and physical progress such as material acquisition. This is significant because economic development does not take place without increase in physical material acquisition and financial resources (Jainaba, Dana, & Muhammadou, 2005; Oluyombo, 2013). The economic development in social capital theory includes improvement in economic condition of the people which may be physical and financial. Assets acquisition is physical economic development while enterprise profit, savings and income are financial economic development. Cooperative societies as economic and social networks can influence members' behavior towards assets building through the provision of loans. However, borrowing is voluntary and the loans have minimal interest.

### **Empirical Evidences**

Adjei and Arun (2009) examined a program that used group lending method and found a significant difference ( $p=0.000$ ) between clients and non-clients in ownership of sewing machine, refrigerator, radio and bed. No significant difference was found in acquisition of television ( $p=0.155$ ) and gas/electric cookers between clients and non-clients. Edgcomb and Garber (1998) reported that more clients than non-clients increased their household assets, but no significant difference ( $p=0.12$ ) was documented in refrigerator ownership. Larocque, Kalala and Gaboury (2002) found that 21% of members used loan to finance housing while Sharma, Simkhada and Shrestha (2005) found that members acquired more of jewellery, houses and vehicle than non-members, but non-members own more land than members.

A study of an NGO finance program by Falaiye (2002) reported that more of the existing clients than new or incoming clients own the house they live in but no significant difference in the accumulation of household assets. Adjei et al. (2009) explored the role an NGO program plays in asset building. Their result suggests a strong association between the loan amount given and acquisition of household assets. They reported that participation in the program leads to ownership of refrigerator (45%) while marital status ( $p=0.000$ ), level of education ( $p=0.000$ ) and household size ( $p=0.008$ ) are statistically significant to fridge ownership. More of the clients own television than non-clients and this is statistically significant ( $p=0.000$ ). They found no difference between the two groups on acquisition of sewing machine,

and no difference in ownership of electric cookers.

A report on the impact of cooperatives on members' standard of living by Ramotra and Kanase (2009) showed that 67.57% of the members have telephone facility while 81.01% own two-wheelers. However, the non-inclusion of non-members as control group does not help in understanding the actual effect of the scheme on the members. Adedayo and Yusuf (2004) found that the actual assets acquired by cooperative members were: House 0.6%, motor car 1.5%, motorcycle 16%, radio 18.5%, television 18.8%, video 20.9% commercial vehicle 0.9%, grinding machine 9.7% and sewing machine 5.8%. The study concluded that membership of cooperative enhances assets acquisition within a short period. Adebayo, Chinedum, Dabo and Pascal (2010) result on asset acquisitions were: Houses 96%, radios 93% and land 80%, but Copestake, Dawson, Fanning, McKay and Wright-Revollo (2005) found that clients were worse off than non-clients in the acquisition of fridges, video players and cars ( $p=5.530$ ).

A qualitative study by Mawa (2008) found that the program helps clients to smoothen consumption level, build assets, educate their children and have better quality of life while Haile (2003) reported that household assets of frequent clients were higher than those of new clients. Haque and Yamao (2008) found that microcredit helps clients to acquire more land than non-clients, 98.33% of clients own houses, 7.09% own bicycles and vehicles while 46.33% acquire VCDs, fans and televisions. They concluded that the program improved the livelihoods of 23.52% of the clients who are not very poor. Morris and Barnes (2005) found that clients own twice more household assets than non-clients. Assets ownership for clients were reported as follows: Radio 24%, television 6%, refrigerator 5%, and land 32%. The findings on assets were not statistically significant with the exception of land ownership. Their work concentrated on a program only for women in conjunction with a gender program, which could have brought a bias on their result as the women alone program and the gender program would have different features.

## Hypothesis

Some of the previous studies are gender biased by considering only female programs; see Adjei and Arun (2009), Adjei et al. (2009), Falaiye (2002), and Morris and Barnes (2005). The studies of Falaiye (2002), Haque and Yamao (2008), Adjei and Arun (2009), and Adjei et al. (2009) were based on programs using group channel in the delivery of their services. Sample selection in most cases comprises cooperative societies members or microfinance clients and rural bank customers. There is no uniformity in the types of assets used in previous studies and in the duration of clients/members in the program. The use of the same type of assets in rural and urban areas is common among studies (Copestake et al., 2005; Falaiye, 2002; Larocque et al., 2002) that were conducted in both areas.

The importance of land ownership as part of household assets in rural areas was neglected in all the Nigerian studies, and only a few took this into account outside Nigeria as in Haque and Yamao (2008), Morris and Barnes (2005), and Simkhada (2004). The results of some studies, i.e. Adedayo et al. (2010), Edgcomb and Garber (1998), Haque and Yamao (2008), and Sharma et al. (2005), were not tested statistically. It is clear from the studies cited above that only those of Adjei and Arun (2009), Adjei et al. (2009), Copestake et al. (2005), and Ramotra and Kanase (2009) are empirical works in nature. With the exception of Adjei et al. (2009) do not test for the effect of participants' demographic variables as contributory factors to ownership of household assets in addition to the program loan. None of the studies considered the ownership of generator as part of their household assets because locations used for all the previous studies are served by an electricity grid. The gaps identified above and the passage of time between this study and the previous two inductive studies on cooperative societies (Sharma et al., 2005; Simkhada, 2004) require the assessment of the contribution of cooperative to members' household assets using collected data to ascertain if the same conclusion will be reached. This will be accomplished by testing the null hypothesis –  $H_0$  : There is no relationship between participation in a cooperative and increase in the acquisition of household assets.

## Methods and Data

The population for the study are cooperative societies in rural communities and villages outside the state capital and local government headquarters where there is no electricity, water, tarred road, bank or other formal financial providers. The political area is in Ogun State, Nigeria. Cooperative societies were chosen because they are mostly found in rural areas and function like financial institutions for rural dwellers. Two local governments that are more rural were selected in each of the three senatorial district of the state. Five cooperatives were randomly selected in each local government from which eleven individuals from the membership list were randomly selected to respond to the survey questionnaires. They included loan members and no-loan members. The no-loan members did not take loans at the time of the study and were used as the control group. The questionnaire was translated into the local language (Yoruba) of the respondents. Officials of the cooperative societies were excluded from working as field assistants to the researcher because using program staff introduces the risk of biased responses and of compromising the validity and reliability of the data (Barnes & Sebstad, 2000).

The numbers of respondents were 223 loan members and 79 no-loan members. They were asked to indicate assets acquired through cooperative loan in the last two years to be able to trace changes that might have occurred in their standard of living through asset ownership. Responses were then used in conducting t-tests on the individual assets, following Adjei et al. (2009), in order to determine if participation in cooperative led to increase in specific assets. Thereafter, the responses to ownership of all the assets were collapsed and used to conduct an independent sample test using the main research hypothesis. The independent sample t-test was used to evaluate statistically significant differences in means between the two groups. One way analysis of variance (ANOVA) was computed where the t-test result is statistically significant to determine the demographic variables that contributed to the ownership of asset in addition to the cooperative loan.

## Results and Discussion

The overall demographic information on the 302 respondents is as follows. By gender, 156 were female and 146 were male. Majority are married. More than one third

has not attended any formal educational institution. The family type shows that 257 are monogamous while 45 are polygamous. Seventy-nine respondents have not received loan from the cooperative and this included 11.4% of those who have been in the program for six years or longer, 36.7% of those within two and five years of membership, and 51.9% of those within a year or less. Table 1 shows the information classified by no-loan and loan members.

Table 1 Demographic information of respondents

Demographic information		No-loan members (n=79)	Loan members (n=223)
Gender (%)	Male	46.8	48.9
	Female	53.2	51.1
Marital status (%)	Married	68.4	84.3
	Separated/divorced	8.9	6.3
	Widow	8.9	4.0
	Single/never married	14.0	5.4
Educational background (%)	Non-formal	38.0	35.0
	Primary	40.5	41.7
	Secondary	10.1	10.8
	Technical/vocational	6.3	6.7
	University/polytechnic	5.1	5.8
Family type (%)	Monogamous	78.5	87.4
	Polygamous	21.5	12.6
Membership duration (%)	0 to 1 year	51.9	9.9
	2 to 5 years	36.7	48.0
	6 years and above	11.4	42.1

The study identifies ten main items of assets, i.e. motorcycle/tricycle, car/lorry, plot of land, house, fridge, television, generator, radio, video/CD and fan, that are valuable and appreciated in rural areas as a result of the pilot test conducted. Loan members were asked if the assets acquired in the last two years prior to the study were made possible by the cooperative loan or not. Confirmation of the research hypothesis requires that individual household assets above should be tested for statistical significance on an individual basis as used by Adjei et al. (2009). The result of the t-test for these assets is in Table 2 below. The discussion of results follows.

Table 2 Test of significance on individual assets

Asset	Levene's test for equality of variance		t-test for equality of means			
	F	Sig.	t (df=300)	Sig. (2-tailed)	Mean difference	Standard error difference
Motorcycle/tricycle	0.566	0.452	0.373	0.710	0.0137	0.0368
Car/lorry	4.156	0.042	0.994	0.321	0.0346	0.0348
Plot of land	25.103	0.000	2.169	0.031*	0.1293	0.0596
Building	15.498	0.000	1.778	0.076	0.1008	0.0567
Generator	35.397	0.000	2.478	0.014*	0.1541	0.0622
TV	31.817	0.000	2.458	0.015*	0.1335	0.0543
Radio	13.535	0.000	-2.310	0.022*	-0.1397	0.0605
Video/CD	6.814	0.010	1.249	0.213	0.0549	0.0439
Fan	2.194	0.140	0.716	0.475	0.0388	0.0542
Fridge	45.453	0.000	2.851	0.005*	0.1551	0.0544

Note: \* Significant at 5%

Motorcycle/tricycle is a means of transportation in rural areas in Nigeria, but the owners are considered to be better off economically than those without any means of transportation. However, there is no significant difference between the score of loan ( $M=0.0897$ ,  $SD=0.28637$ ) and no-loan ( $M=0.0759$ ,  $SD=0.26661$ ) members  $t(300)=0.373$ ,  $p=0.710$  in acquisition of motorcycle/tricycle. There is no association between being a loan member and better standard of living through the acquisition of motorcycle/tricycle. However, Simkhada (2004) reported that cooperative members own more motorcycles than non-members. Adedayo and Yusuf (2004) found that 16% of members purchase motorcycle with a cooperative loan while Haque and Yamao (2008) found that 7.09% of clients purchase bicycle but none of these results was tested statistically.

The use of cars and lorries may not be common in rural areas and especially with the deplorable conditions of the access roads to and within the communities and villages used for this study. The ownership of car and lorry to a certain level is needed, if not for personal convenience, for the purpose of trade and services to connect the community with other villages and towns. The cars/lorries are not new; they are well-used and bought at second-hand value. There is no significant difference between the score of loan members ( $M=0.0852$ ,  $SD=0.27981$ ) and no-loan members ( $M=0.0506$ ,  $SD=0.22065$ ) in ownership of

car/lorry  $t(300)=0.994$ ,  $p=0.321$ . Previous studies (Simkhada, 2004; Sharma et al., 2005) documented that members acquire more of vehicle than non-members, but without any data or statistical test to support their findings. But Copestake et al. (2005) found no statistical significance ( $p=5.530$ ) in ownership of car. This result may be the effect of the amount of loan that is accessible from the scheme which may not be enough to acquire a car/lorry.

Land ownership refers to owning a piece of land within the community or village township where majority of activities and trade take place. There is a significant ( $p=0.031$ ) association between participation in cooperatives and acquisition of plot of land. Cooperative loan members ( $M=0.3318$ ,  $SD=0.47193$ ) are more likely to acquire plots of land than no-loan members ( $M=0.0225$ ,  $SD=0.40445$ ). The result is different from that of Sharma et al. (2005) which reports that non-members own more land than members. But the finding agrees with Simkhada (2004) that members own more land than non-members. A similar result, that 80% of members acquired land, was reported by Adebayo et al. (2010) but statistical test was not carried out by these studies. Morris and Barnes (2005) documented statistical significance with clients owning 32% and non-clients 23%. Loan members are more likely to buy land with the loan to improve their economic position, for better standard of living and reduction in poverty than, say, automobiles.

From the ANOVA result in Appendix 1, the variables which played significant roles in ownership of land in addition to the loan are membership duration ( $p<0.001$ ), age ( $p=0.007$ ) and household size ( $p=0.026$ ). The result suggests that members who have been in the program for 6 years and above ( $M=0.3689$ ,  $SD=0.48487$ ) performed better in land ownership than other groups. This may be the outcome of the loan condition that makes it compulsory for members to access loan as a percentage of their savings in the program. Members in the 21-30 years old group ( $M=0.5143$ ,  $SD=0.50709$ ) owned more land than the other age groups. This may be possible because these young people have more strength to engage in different kinds of work than the elderly. This may give them more income to enable them to increase their savings as well as meet loan repayment. It could also be assumed that majority of them have less family responsibilities since most are likely to be single without financial commitments towards a spouse or to children's education. The participants household size was found to be statistically significant ( $p=0.026$ ) to ownership

of land. There is no significant difference in the number of people in each household. The number of people in a household has no influence in the ability of members to acquire land.

For the purpose of this study, no distinction was made between the type of buildings such as bungalow, room or set of rooms. Being a loan member in a cooperative does not lead to better standard of living through ownership of building for the household because there was no significant difference in the score for loan ( $M=0.2780$ ,  $SD=0.44903$ ) and no-loan ( $M=0.1772$ ,  $SD=0.38429$ ) members  $t(300)=1.778$ ,  $p=0.076$ . Simkhada (2004) and Sharma et al. (2005) reported contrary findings but their results were not subjected to any statistical test.

Due to non-availability of a public electricity supply in the study locations, ownership of generator becomes important since it is the main source of power generation. There is a statistically significant ( $p=0.014$ ) relationship between participation in a cooperative and ownership of generator. There was a higher ownership of generator among those who took loan from the cooperative ( $M=0.3946$ ,  $SD=0.48987$ ) than the no-loan members ( $M=0.2405$ ,  $SD=0.43012$ ),  $t(300)=2.478$ ,  $p=0.014$ . The ownership of a generator indicates that a member is economically stable because the fuel cost adds to the household expenditure, which suggests that the members' income has increased to a level which they could acquire a generator and afford the cost of fuel and maintenance.

The ANOVA result in Appendix 2 revealed that the only criterion that complemented the loan which made the loan members to own generator was the house ownership ( $p=0.004$ ). Those in rented houses ( $M=0.4353$ ,  $SD=0.49726$ ) have the highest result compared to the other groups. It is possible that those who owned their houses might have reached their loan limit in the program by acquiring the land or the building or both.

The ownership of television allows the rural people to know what is happening within their state, the nation and the world. There is a link between being a loan member and owning a television as a result of the difference in the mean score of loan ( $M=0.2601$ ,  $SD=0.43967$ ) and no-loan ( $M=0.1266$ ,  $SD=0.33463$ ) members  $t(300)=2.458$ ,  $p=0.015$ . Adjei et al. (2009) reported a similar result while Morris and Barnes (2005) finding was not significant. The loan members are progressing economically because ownership of television enhances the social status of the rural dwellers. This also suggests that such members own generators to power the television and shows the ability to provide for one's household, avoiding possible

ridicule to the members of the household for not having a television.

The ANOVA result in Appendix 3 revealed that age ( $p=0.016$ ), educational background ( $p<0.001$ ) and household size ( $p<0.001$ ) are contributory variables to ownership of television. More members of the 51-60 years old group ( $M=0.3704$ ,  $SD=0.49210$ ) own television than those in other age groups. The elderly (51-60 years) need more time to relax and are likely to do this by watching television. Members with primary education own a higher number of televisions than others with a mean score of 0.3440. There are likely more programs in the local language that appeal to the core illiterate than the educated ones among them. The size of a household does not have any effect on television ownership. A household of five people is not different from a household of eleven people in the number of television sets owned.

The ownership of radio is considered because it affords those who cannot acquire a television an alternative means of listening to news and events directly instead of being told, which may include distorted information. More of the loan members ( $M=0.2780$ ,  $SD=0.44903$ ) own radios than no-loan members ( $M=0.4177$ ,  $SD=0.49634$ ),  $t(300)=2.310$ ,  $p=0.022$ . The result is significant; hence participation in cooperatives can be associated with acquisition of radios. Similar result was documented by Adjei and Arun (2009) while Adedayo and Yusuf (2004) and Adebayo et al. (2010) reported that 18.5% and 93% of members respectively bought radio but without any statistical test. None of the demographic variables contributed to ownership of radio.

The need for owning a video/CD is on the increase because production of local movies and music are now recorded on CDs. The t-test result of  $p=0.213$  revealed that it cannot be proved statistically that loan members ( $M=0.1435$ ,  $SD=0.35137$ ) acquire more video/CD than no-loan member ( $M=0.0886$ ,  $SD=0.28599$ )  $t(300)=1.249$ ,  $p=0.213$ . Copestake et al. (2005) also found the acquisition of video not to be significant ( $p=5.992$ ) while Haque and Yamao (2008) reported that microfinance helps women clients to increase ownership of video/CD by 40.55%.

Having a fan in a household is necessary in a country such as Nigeria where the climate is relatively harsh – warm, sunny and humid for most of the year. The household may have a ceiling fan, standing fan or table fan. The t-test result of 0.475 is not statistically

significant. The loan members ( $M=0.2287$ ,  $SD=0.42094$ ) are not better off than no-loan members ( $M=0.1899$ ,  $SD=0.39471$ )  $t(300) = 0.716$ ,  $p=0.475$  in fan acquisition. Those with fan are likely to have generators to power it and members have to consider this before acquiring fans.

The ownership of fridge affords the household the opportunity of having something cold to drink to cushion the effect of harsh weather and to preserve the quality of food. It could also be used for income generation through the sale of ice blocks, cold water and drinks. The fridges owned by the respondents are not new and usually referred to as “tokunbo fridge” because they are well-used fridges imported into the country. There is a significant relationship ( $p=0.005$ ) between participation in cooperatives and the acquisition of fridges. Those who participate in cooperatives as loan members ( $M=0.2691$ ,  $SD=0.44447$ ) are able to increase their standard of living through the acquisition of fridges more than no-loan members ( $M=0.1139$ ,  $SD=0.31975$ )  $t(300)=2.851$ ,  $p=0.005$ . Edgcomb and Garber (1998) and Copestake et al. (2005) reported no significant difference. But Adjei and Arun (2009) found statistical significance at  $p<0.001$ . The ANOVA result in Appendix 4 suggests that only education ( $p=0.001$ ) is statistically significant to ownership of fridge in addition to the loan. Members with primary education ( $M=0.3520$ ,  $SD=0.47952$ ) had the highest ownership of fridge among the groups.

The t-test results above looked at different types of household assets one after the other to establish the role of cooperative societies in rural finance. In Table 3 and Table 4, the responses to ownership of all the ten assets were collapsed and used to conduct an independent sample test using the main research hypothesis stated above.

Table 3 Group statistics

	Loan access	N	Mean	Std. deviation	Std. error mean
Number of household	Yes	223	3.3632	1.90965	0.12788
assets	No	79	2.6835	1.21470	0.13666

Table 4   Independent sample test

		Levene's test for equality of variance		t-test for equality of means			95% Confidence Interval of the difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Standard error difference	Lower    Upper
Number of household assets	Equal variances assumed	24.142	0.000	2.957	300	0.003	0.6797	0.2299	0.2273   1.1320
	Equal variances not assumed			3.631	216	0.000	0.6797	0.1872	0.3108   1.0486

The t-test result of  $p=0.003$  indicates a significant difference between the mean score of loan members ( $M=3.3632$ ,  $SD=1.90965$ ) and no-loan members ( $M=2.6835$ ,  $SD=1.21470$ )  $t(300)=2.957$ ,  $p=0.003$  that acquire household assets. The difference in ownership could be the result of the no-loan members selling their assets to raise fund instead of acquiring loan. This result contradicts Falaiye (2002) but tallies with Ramotra and Kanase (2009).

Conclusion

The study shows that land, generator, television, radio and fridge were more likely to be acquired by members than non-members. But there is no linkage between participation in a cooperative and acquisition of motorised vehicles. A measure of the contribution of the cooperative to a better standard of living is the number of members that own household assets through the cooperative loan. In contrast, the study did not find evidence that cooperative members used the scheme as a means to acquire buildings.

The study found a positive relationship of the ability of members to acquire land with a cooperative loan. This is important because much of what happens in the rural areas is connected to the possession of land, which empowers people and gives them access to other resources. Whilst the study results differ from that of Sharma et al. (2005) - that non-members

own more land than members - they agree with Simkhada (2004) findings that members own more land than non-members.

There is a relationship between participation in a cooperative and ownership of generator. Ownership of generator in a community that lacks electricity supply is for social status but also to maintain a high social echelon in the community because of the lack of infrastructure and public utilities in such communities and villages. It should be noted that the cost of these household items are minimal compared to the cost in a developed economy because some of the items are well-used and imported from abroad. Hence, a small loan resulting in an increase in such assets still makes a difference and can lead to a better standard of living among members. The lack of government policy to aid in the accumulation of asset for rural dwellers and the provision of formal rural finance providers may necessitate the use of cooperative loan for asset building over time.

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## Appendices

The tables below provide the ANOVA results of the participants' demographic variables that have significant contributions to the ownership of household assets in addition to the cooperative loans.

### Appendix 1 ANOVA of demographic variables on plot of land owned

#### A. Membership duration

	Sum of squares	df	Mean square	F	Sig.
Between groups	3.328	2	1.664	8.314	.000
Within groups	59.850	299	.200		
Total	63.179	301			

#### B. Household size

	Sum of squares	df	Mean square	F	Sig.
Between groups	4.793	12	.399	1.977	.026
Within groups	58.386	289	.202		
Total	63.179	301			

#### C. Age

	Sum of squares	df	Mean square	F	Sig.
Between groups	2.925	4	.731	3.604	.007
Within groups	60.254	297	.203		
Total	63.179	301			

### Appendix 2 ANOVA of demographic variables on generator owned

#### A. House ownership

	Sum of squares	df	Mean square	F	Sig.
Between groups	2.551	2	1.276	5.732	.004
Within groups	66.538	299	.223		
Total	69.089	301			

## Appendix 3 ANOVA of demographic variables on television owned

## A. Household size

	Sum of squares	df	Mean square	F	Sig.
Between groups	9.037	12	.753	4.986	.000
Within groups	43.652	289	.151		
Total	52.689	301			

## B. Age

	Sum of squares	df	Mean square	F	Sig.
Between groups	2.106	4	.526	3.091	.016
Within groups	50.583	297	.170		
Total	52.689	301			

## C. Education

	Sum of squares	df	Mean square	F	Sig.
Between groups	3.803	4	.951	5.776	.000
Within groups	48.886	297	.165		
Total	52.689	301			

## Appendix 4 ANOVA of demographic variables on fridge owned

## A. Education

	Sum of squares	df	Mean square	F	Sig.
Between groups	3.410	4	.853	5.082	.001
Within groups	49.825	297	.168		
Total	53.235	301			

## B. Household size

	Sum of squares	df	Mean square	F	Sig.
Between groups	9.591	12	.799	5.292	.000
Within groups	43.644	289	.151		
Total	53.235	301			